claim 7 are independent with the remaining allegedly anticipated claims being dependent upon them. This rejection should be withdrawn because Mourant does not disclose or suggest all of the elements of each of the aforementioned independent rejected claims as is required for making or maintaining a rejection under 35 U.S.C. § 102(b).

Mourant discloses a mixer comprising a floating FET that is connected to a local oscillator at its gate while the source and sink terminals of the FET are inductively connected to a center-tapped primary winding of a balun. There is no discussion in Mourant of shunting an input radio frequency voltage received at a secondary winding of the balun and seen as a balanced voltage following conversion at the primary winding of the balun. Not surprisingly, the terms "transient," "protection," or "shunt" are entirely absent from the disclosure of Mourant. Moreover, the disclosed embodiments of Mourant are not compatible with the claimed invention.

In Mourant, the local oscillator driving the gate of the floating FET through a capacitor provides the appropriate biasing, thus obviating the need for an external biasing source to maintain the floating FET in a pinch-off state, i.e., a normally on state. See col. 1, ln. 64-67; col 2, ln. 54-63; and col. 3, ln. 46-55 of Mourant. Mourant not only does not disclose or suggest a normally-off FET, it actually teaches away from such configurations by **emphasizing** that the disclosed biasing of the FET in a normally on state is an important improvement. See, e.g., column 3, lines 46-55 of Mourant. Therefore, the transistor of Mourant, being already ON, cannot be turned ON ('become conductive') by a signal. Thus, the allegation of the Office Action that Mourant discloses a method and apparatus in which a transistor becomes conductive and shunts a balanced signal from the first output terminal to the second output terminal of the transistor in response to a balanced transient signal conflicts with Mourant's detailed description of the transistor already being on. This conflict

underscores the failure of Mourant to anticipate at least one element of claims 1 and 7 by either explicit disclosure or by suggestion. Consequently, applicants respectfully request that either the rejection of claims 1-3, 5, 7, and 8 premised on alleged anticipation by Mourant be withdrawn or detailed reasons be provided for setting aside Mourant's description.

It is also noteworthy that the disclosed embodiments of Mourant are inoperable in the manner of the claimed invention of the rejected claims 1-3, 5, 7, and 8. The bidirectional transistor of the claimed invention becomes conductive in response to a balanced transient signal that turns on the normally-off bidirectional transistor. Contrary to the assertion of the Office Action, Mourant discloses that the transistor rather than being normally off, is actually turned on or off by the local oscillator. See, e.g., column 2, line 53 of Mourant. The disclosure of a transistor being periodically switched on/off is contrary to the recitation in claim 1 of a "normally-off bidirectional transistor," and hence fails to anticipate claim 1 or any of the claims 2, 3, and 5 dependent upon it. Similarly, since claim 7 recites that "due to the balanced transient signal" the bidirectional transistor "becomes conductive," it also requires a non-conductive state for the bi-directional transistor, which is then made conductive by the balanced transient signal rather than the local oscillator. Therefore, Mourant's disclosure does not anticipate either claim 7, or claim 8 dependent upon claim 7.

Mourant goes on to disclose that a large value for the input RF signal drives the transistor toward saturation, i.e., both the drain and source are forward biased relative to the gate. See, e.g., column 2, lines 57-63 of Mourant. This is clearly not turning the transistor on. Accordingly, in view of the above described inability of the embodiments of Mourant for performing in the manner of the claimed invention, applicants respectfully request that the rejection of claims 1-3, 5, 7, and 8 as being anticipated by Mourant under 35 U.S.C. § 102(b) be withdrawn.

In the event this traversal of the rejection of claims 1-3, 5, 7 and 8 is deemed to be in error, or otherwise insufficient, applicants respectfully request a more detailed enumeration of the reasons to allow a response to be formulated.

Rejection of claims 4 and 6 under § 103(a) should be withdrawn

The Office Action also rejected claim 4 and 6 for being obvious over the cited art. Claim 4, dependent upon claim 1, stands rejected over Mourant. Claim 6, also dependent upon claim 1, stands rejected by the Office Action under § 103(a) over Mourant in view of the United States Patent No. 4,705,967 issued to Carmine F. Vasile on November 10, 1987 (hereinafter "Vasile").

As already demonstrated, Mourant does not disclose or suggest all of the limitations of claim 1, which claim's limitations are incorporated into each of the dependent claims 4 and 6. Making or maintaining a rejection of a claim as being obvious under § 103(a) requires that the relied upon references teach all of the limitations of the claimed invention along with a motivation to combine the references within the record. Therefore, the rejections of claims 4 and 6 must be withdrawn.

In addition, the Office Action, itself acknowledges that the Mourant reference does not disclose yet another limitation of claim 4 in the use of the transistor as claimed, but maintains nevertheless that use would be obvious to one of ordinary skill in the art. The Office Action relies, at least in part, upon applicants disclosure in arriving at this conclusion since the applicants allegedly disclose that many "unbalanced voltage protection transistors" are suitable for implementing the invention.

Applicants respectfully traverse this rejection for as least the reason of being unable to locate any discussion of an "unbalanced voltage protection transistors" in their disclosure and

are assuming that the Office Action is referring to the bidirectional transistor. The desirability of a bidirectional transistor as the protection transistor to handle currents in either direction by the source and drain terminals being interchangeable depending on the applied voltages is taught by the one of the embodiments disclosed by the applicants. Such a bidirectional transistor is also recited in claim 1. No such preference for bidirectional transistors is disclosed by Mourant, and therefore the rejection of claim 4 should be withdrawn.

Turning to the rejection of claim 6, Vasile, like Mourant, discloses a normally-on FET, and hence even in combination with Mourant, is insufficient to disclose or suggest all of the limitations of the claimed invention. The multifunction floating FET circuit of Vasile also comprises a first and a second bias impedances, and a first and a second capacitors. See FIG. 1 and col. 3, ln. 1-30. Vasile's floating FET circuit, however, does not teach "a normally-off bidirectional transistor" and therefore is insufficient as a matter of law to render the claimed invention of claim 6 obvious under § 103(a) alone or in combination with the Mourant reference. Accordingly, it is respectfully requested that the § 103(a) rejection of claim 6 be withdrawn.

CONCLUSION

In light of the above, it is respectfully submitted that the present application is in condition for allowance. Favorable disposition is respectfully requested. Should the Examiner have any questions or comments concerning this submission, or any aspect of the application, the Examiner is respectfully invited to call the undersigned at the phone number listed below.

No fee other than that for the accompanying petition for extension of time for one (1) month is believed due at this time. Should any fees be required, please charge such fees to Pennie & Edmonds LLP Account No. 16-1150.

Respectfully submitted,

Dated: Jan. 21, 2003

Reg. No. 51,794

for

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APPENDIX A

PENDING CLAIMS OF U.S. PATENT APPLICATION SERIAL NO. 09/668,181

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1. A transient overvoltage protection circuit, comprising:

   a. a normally-off bidirectional transistor having a first output terminal coupled to a first signal branch of a balanced circuit, a second output terminal coupled to a second signal branch of the balanced circuit, and a control terminal connected to a reference voltage;

wherein a balanced overvoltage transient signal present on the first and second signal branches of the balanced circuit causes said bidirectional transistor to become conductive and to shunt the balanced transient from said first output terminal to said second output terminal.

2. The transient overvoltage protection circuit of claim 1, further comprising:

   a. a balun transformer, having a pair of input terminals capable of receiving an unbalanced transient signal and a pair of output terminals connected to the first and second signal branches of the balanced circuit,

wherein said balun transformer converts an unbalanced overvoltage transient signal appearing at its input terminals to a balanced overvoltage transient signal appearing at its output terminals.

3. The circuit according to claim 1 or 2 wherein said bidirectional transistor is one of a MESFET, MOSFET, JFET, or HFET.

4. The circuit according to claim 1 or 2 wherein said bidirectional transistor is one of a BJT or an HBT.

5. The circuit according to claims 1 or 2, additionally comprising:

a. a resistor inserted between said control terminal and said reference voltage.

6. The circuit according to claims 1 or 2, additionally comprising:

a. a first bias impedance coupled between said first output terminal of said bidirectional transistor and a first bias voltage source; and

b. a second bias impedance coupled between said second output terminal of said bidirectional transistor and a second bias voltage source;

c. a first capacitor coupled between said first output terminal of said bidirectional transistor and one of the pair of said balun output terminals; and

d. a second capacitor coupled between said second output terminal of said bidirectional transistor and the other of the pair of said balun output terminals.

7. A method for protecting a circuit against overvoltage transients, comprising the step of:

a. coupling a balanced transient signal to a first output terminal and a second output terminal of a bidirectional transistor which has a control terminal coupled to a reference voltage;

wherein said balanced transient signal causes said bidirectional transistor to become conductive and to shunt said balanced overvoltage transient signal from said first output terminal to said second output terminal of said bidirectional transistor.

8. The method of claim 7, further comprising the step of first converting an unbalanced overvoltage transient signal to a balanced transient signal.